



US 20030087292A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2003/0087292 A1**
Chen et al. (43) **Pub. Date: May 8, 2003**(54) **METHODS AND SYSTEMS FOR
PROMOTING INTERACTIONS BETWEEN
PROBES AND TARGET MOLECULES IN
FLUID IN MICROARRAYS**on Aug. 8, 2002. Provisional application No. 60/357,
392, filed on Feb. 15, 2002.**Publication Classification**(76) Inventors: **Shiping Chen**, Fremont, CA (US);
Jianming Xiao, Fremont, CA (US);
Kaijun Li, San Jose, CA (US); **Hoang**
M. Nguyen, San Jose, CA (US)(51) **Int. Cl.⁷** **C12Q 1/68**; C12M 1/34(52) **U.S. Cl.** **435/6**; 435/287.2; 435/286.5

Correspondence Address:

Charles D. Holland**Morrison & Foerster LLP****755 Page Mill Road****Palo Alto, CA 94304-1018 (US)**(57) **ABSTRACT**

Methods and apparatus for promoting interactions between an array of probes deposited on a microarray substrate and target molecules in a target liquid are provided. A microarray apparatus can include a substrate having an array of probes deposited on a surface of the substrate for interaction with a target molecule in a target liquid. The apparatus also includes a cover coupled to the substrate to form a reaction chamber therebetween, wherein the array of probes is contained within the reaction chamber and the substrate and the cover are movable relative to each other.

(21) Appl. No.: **10/264,892**(22) Filed: **Oct. 4, 2002****Related U.S. Application Data**(60) Provisional application No. 60/327,686, filed on Oct.
4, 2001. Provisional application No. 60/402,371, filed